

Title: PRODUCTION OF OLIGOSACCHARIDES IN  
TRANSGENIC PLANTS  
Inventors: J.C.M. Smeekens et al.  
Docket No.: ARNO121867

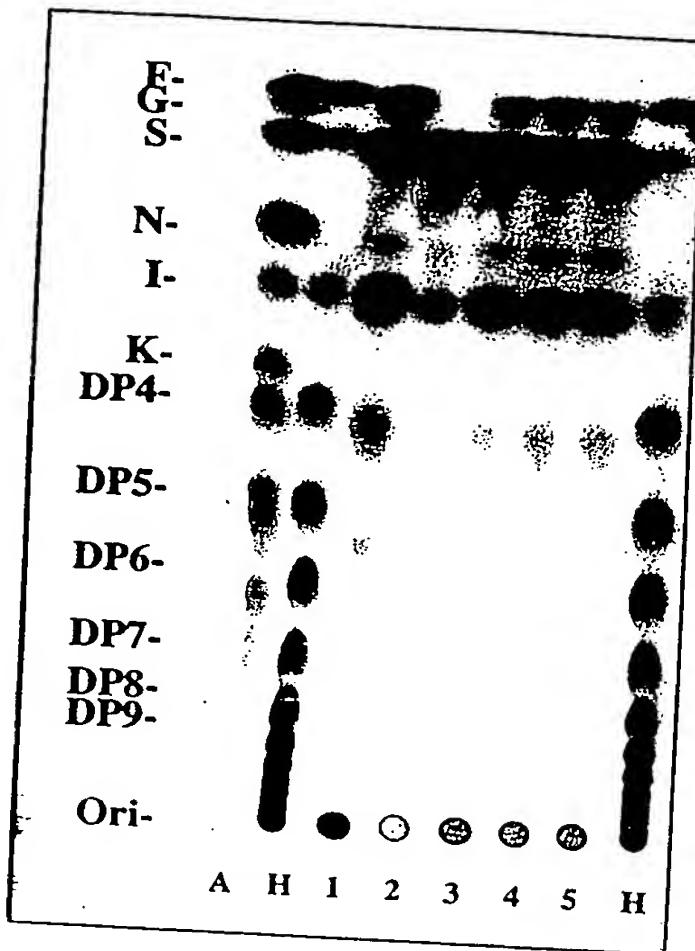


FIG. 1

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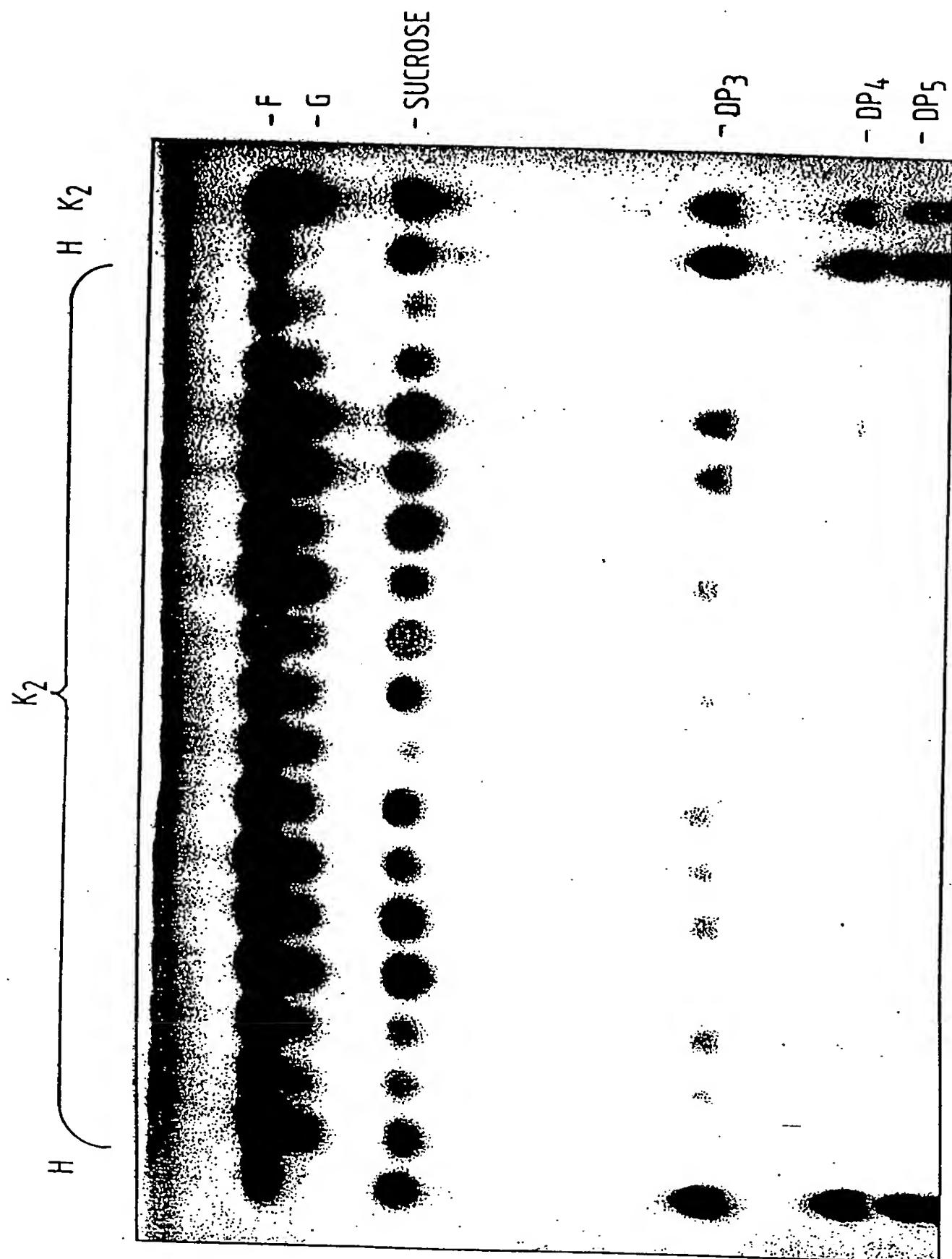


FIG. 2

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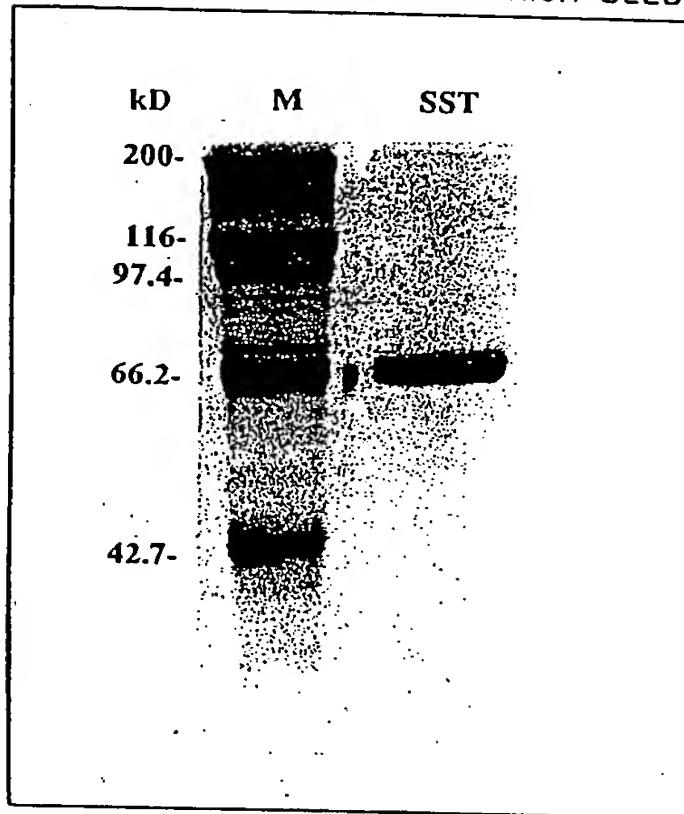


FIG. 3

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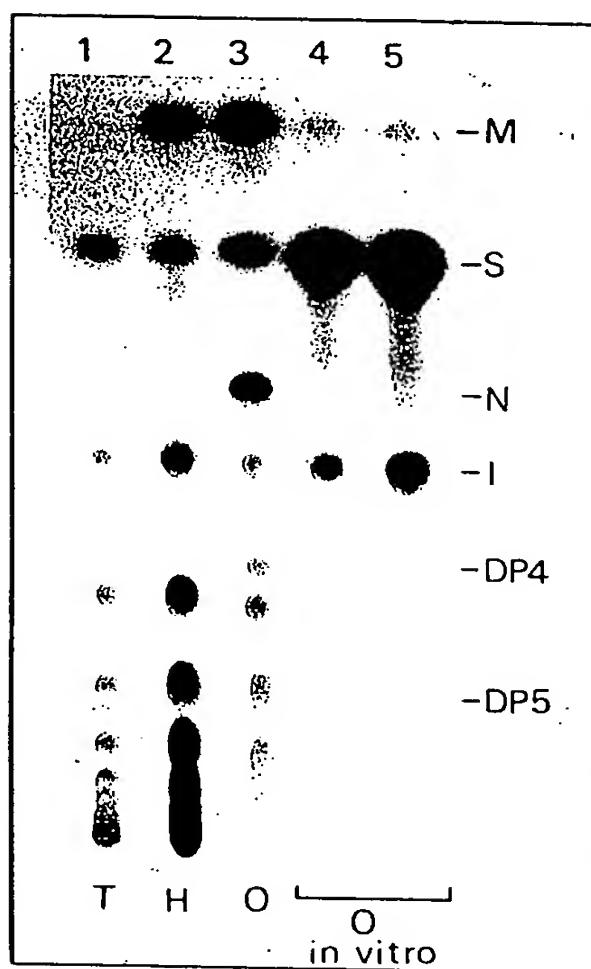
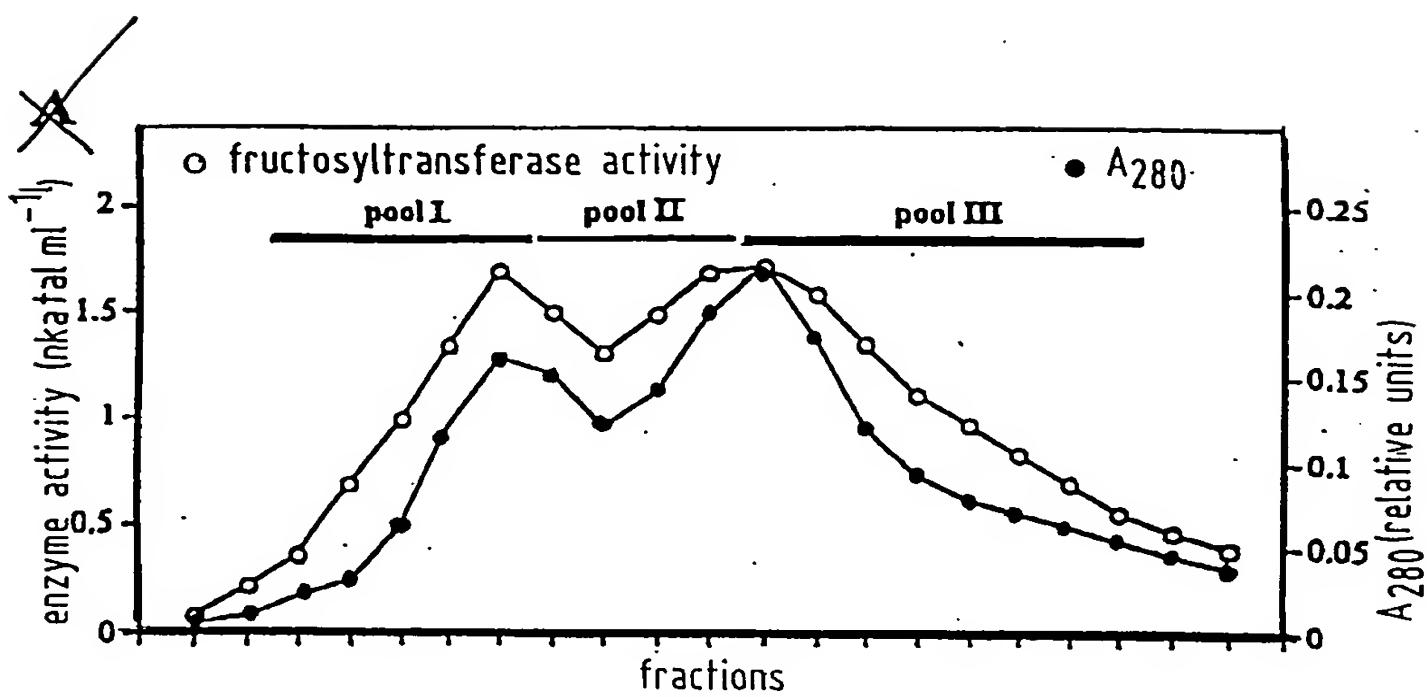
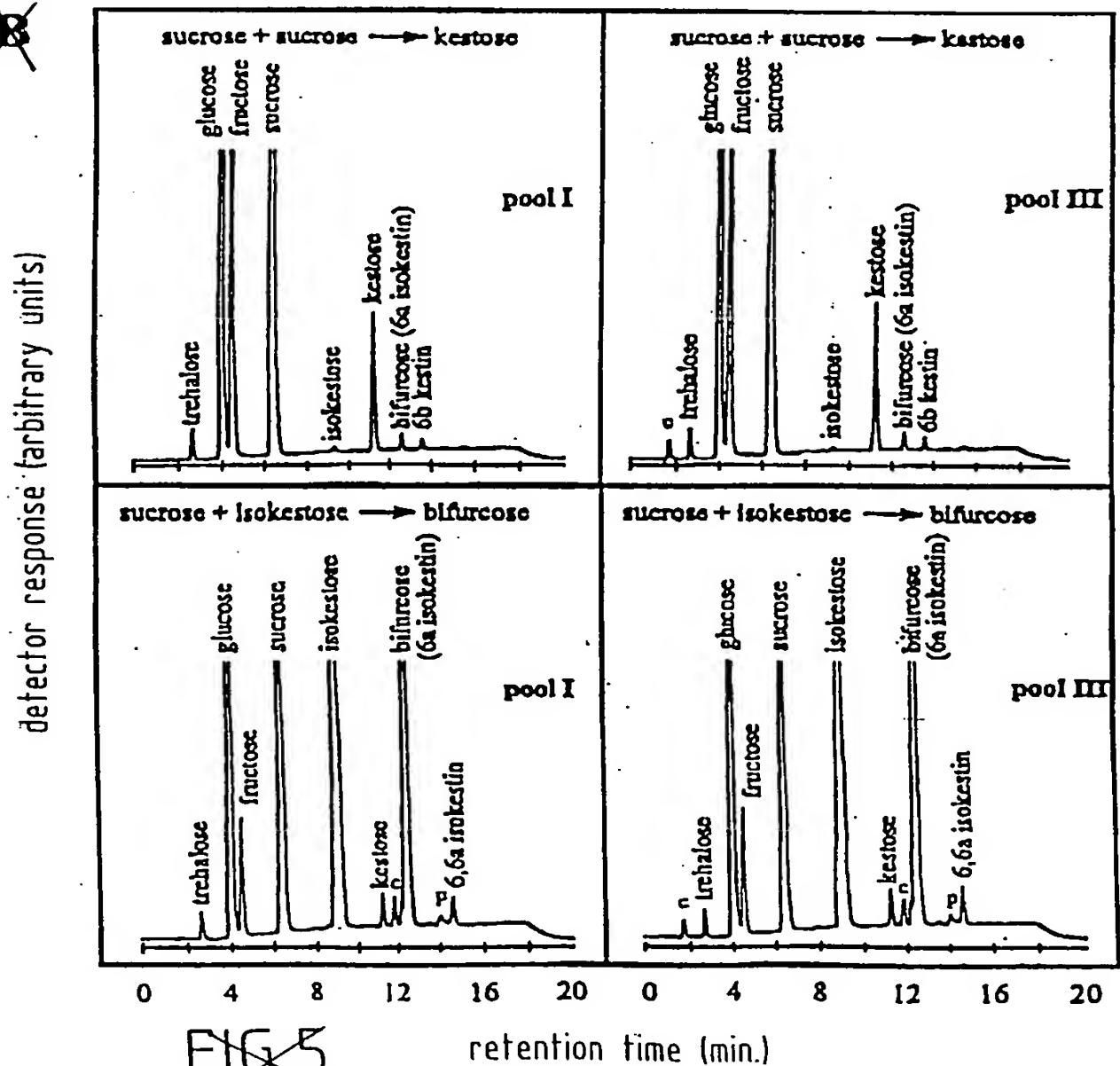


FIG. 4

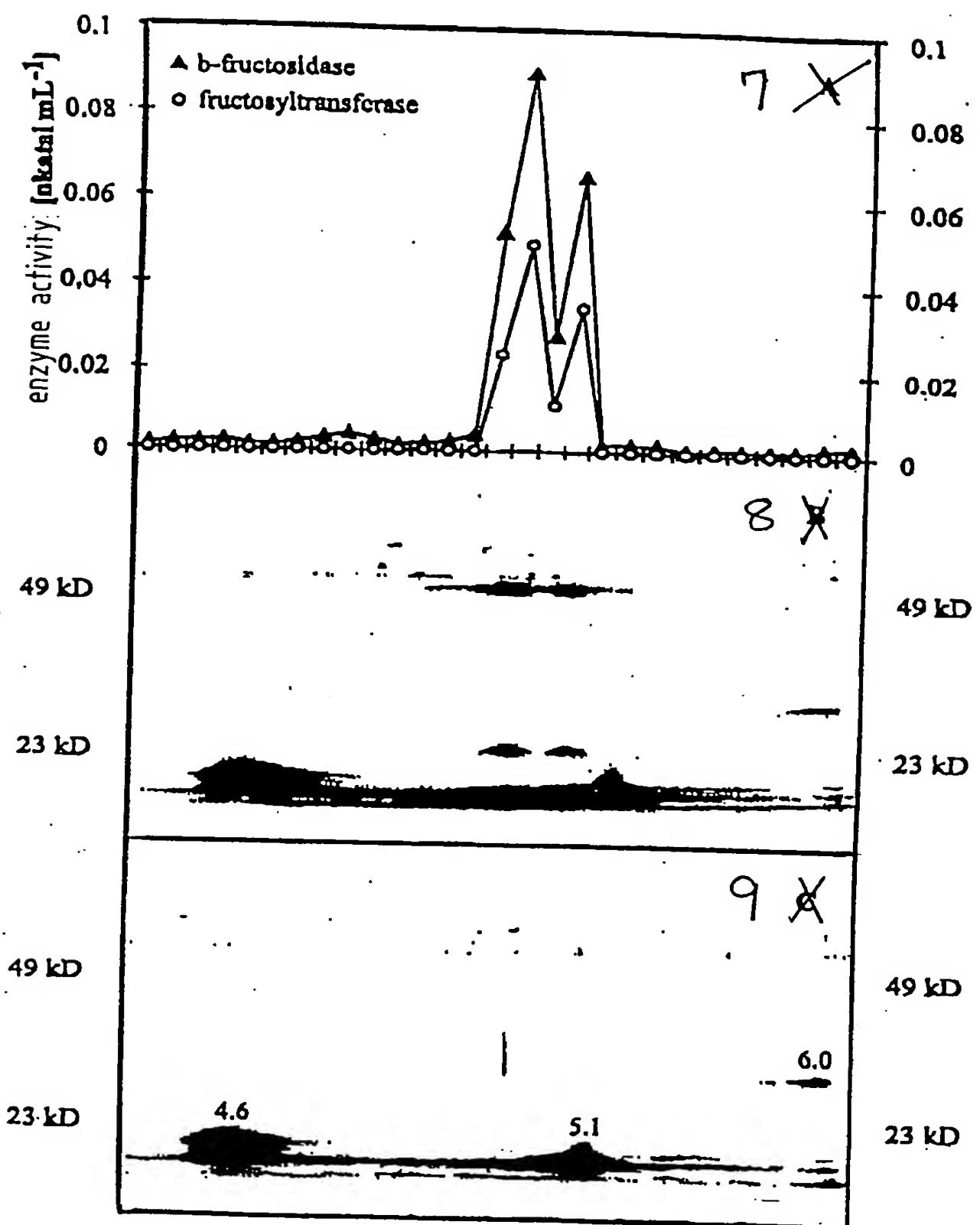
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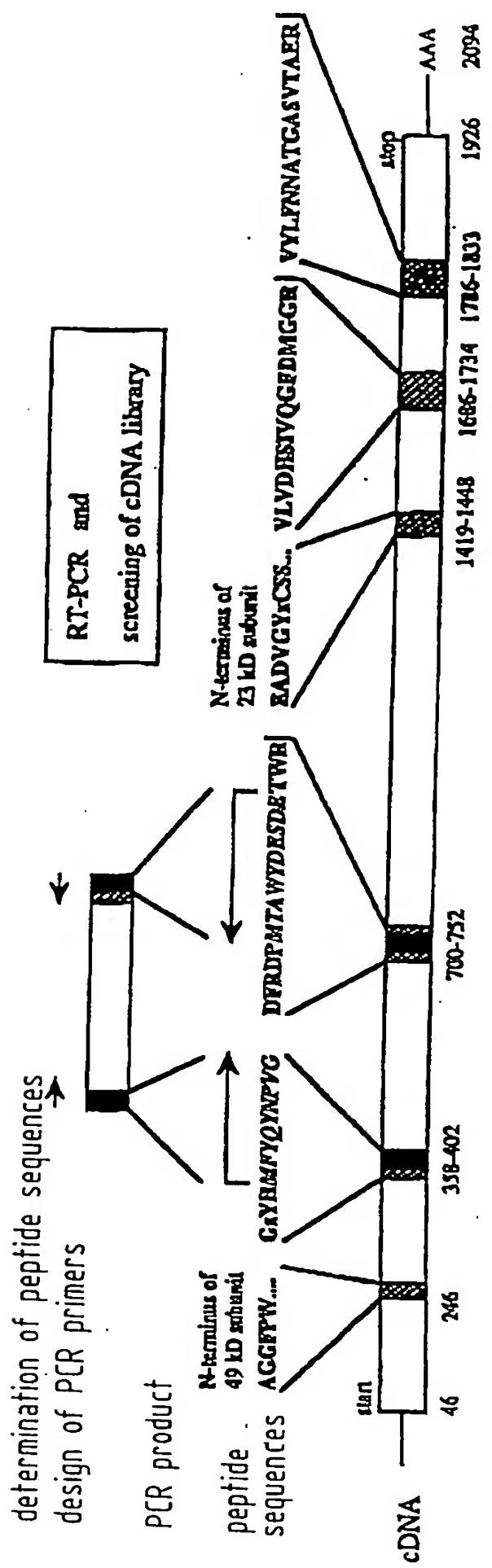


~~FIG 5~~



FIGS 7, 8, 9

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Sequence of cDNA encoding 6-SFT from barley

GCTCAGAATCTACCAAACCCCTCTCGGAGTTGACGAGCGGCCGCATGGGTACACGGC  
MetGlySerHisGly  
AAGCCACCGCTACCGTACCGCTACAAGCGCTGCCCTCGAACGCCGCCGACGGTAAGCGG  
LysProProLeuProTyrAlaTyrLysProLeuProSerAspAlaAlaAspGlyLysArg  
ACCGACTGCATGAGGTGGTCCCGCTGTCACCGTGTGACGGCCTCGGCCATGGCGGTG  
ThrGlyCysMetArgTrpSerAlaCysAlaThrValLeuThrAlaserAlaMetAlaVal  
GTGGTGGTCCCGCCACGCTCTGGCGGATTGAGGATGGAGCAGGCCGTCGACGGAGGAG  
ValValValGlyAlaThrLeuLeuAlaGlyLeuArgMetGluGlnAlaValAspGluGlu  
GGGGCGGGGGGCGGAGTTCCCGTGGAGCAACGAGATGCTGGAGTGGCACGGCAGCGTTAC  
AlaAlaAlaGlyGlyPheProTrpSerAsnGluMetLeuGlnTrpGlnArgSerGlyTyt  
CATTTCCAGACGGCCAAGAACTACATGAGCGATCCAAACGGCCTGATGTATTACCGTGG  
HisPheGlnThrAlaLysAsnTyrMetSerAspProAsnGlyLeuMetTyrTyrArgGly  
TGGTACCACATGTTCTACCAAGTACAACCCGGTGGGCACCGACTGGGACGACGGCATTGGAG  
TrpTyrHisMetPheTyrGlnTyrAsnProValGlyThrAspTrpAspAspGlyMetGlu  
TGCGGCCACGCCGTGCCCCGAACTGTCCAATGGGCACCCCTCCCTATGCCATGGTG  
TrpGlyHisAlaValSerArgAsnLeuValGlnTrpArgThrLeuProIleAlaMetVal  
GCCGACCAGGGTACCGACATCCTCGGAGTCCTCTCGGGCTCCATGACGGTACTACCCAAAC  
AlaAspGlnTrpTyrAspIleLeuGlyValLeuSerGlySerMetThrValLeuProAsn  
GGGACGGTCATCATGATCTACACGGGACCCACCAACGCCCTCCGGCTGGGACCAAGCACCCGCC  
GlyThrValIleMetIleTyrThrGlyAlaThrAsnAlaserAlaValGluValGlnCys  
ATCGCCACCCCAGGCAACGACCCCTCCCTCCGGCTGGGACCAAGCACCCGCC  
IleAlaThrProAlaAspProAsnAspProLeuLeuArgArgTrpThrLysHisProAla  
AACCCCGTCATCTGGTGGCCGGGAGGAGTCGGCACCAAGGATTTCGAQACCCGATGACC  
AsnProValIleTrpSerProProGlyValGlyThrLysAspPheArgAspProMetThr  
GCCTGGTACGGAGTCCGACGAGACATGGCGACCCCTCCCTGGGTCACAGGACGACCAC  
AlaTrpTyrAspGluSerAspGluThrTrpArgThrLeuGlySerLysAspAspHis  
GACGGCCACCGACGGCATGCCATGATGTACAAGACCAAGGACTTCCTCAACTACGAG  
AspGlyHisAspGlyIleAlaMetMetTyrLysThrLysAspPheLeuAsnTyrGlu  
CTCATCCCAGGCACTTGCACTGGGTGGTGCACCGGGCGAGTGGGAGTGCATGACTTC  
LeuIleProGlyIleLeuHisArgValValArgThrGlyGluTrpGluCysIleAspPhe  
TACCCCGTCGGCCGGAGAAGCAGCGACAACCTCGTCGGAGATGCTGCACGTGTTGAAGGCG  
TyrProValGlyArgArgSerSerAspAsnSerSerGluMetLeuHisValLeuLysAla  
AGCATGGACGACGAACGGCACGACTACTACTCACTGGGCACGTACGACTGGGGGCCAAC  
SerMetAspAspGluArgHisAspTyrTyrSerLeuGlyThrTyrAspSerAlaAlaAsn  
ACGTGGACGCCATCGACCCGGAGCTCGACTTGGGGATCGGCTGAGATACTGACTGGGG  
ThrTrpThrProIleAspProGluLeuAspLeuGlyIleGlyLeuArgTyrAspTrpGly  
  
AAGTTTTATGCGTCCACCTCCTCTATGATCCGGCAAGAACCGGCCGIGCTCATGGGG  
LysPheTyrAlaSerThrSerPheTyrAspProAlaLysAsnArgArgValLeuMetGly  
TACGTGGCGAGGTCGACTCCAAGCGGGCTGATGTCGTCAAGGGATGGGCTTCATTCA  
GlyTyrValGlyGluValAspSerLysArgAlaAspValValLysGlyTrpAlaserIleGln  
TCAGTTCTAGGACGGTGGCTCTGGATGAGAAGACCCGGACGAACCTCCCTGCTCTGGGCC  
SerValProArgThrValAlaLeuAspGluLysThrArgThrAsnLeuLeuLeuTrpPro  
GTTGAGGAGATCGAGACCCCTCCGCCTCAATGCCACGGAACTGACCGACGTTACCATTAAC

FIG. 8 II

Title: PRODUCTION OF OLIGOSACCHARIDES IN  
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ValGluGluIleGluThrLeuArgLeuAsnAlaThrGluLeuThrAspValThrIleAsn  
ACTGGCTCCGTCAATCCATATCCCCTCCGCCAAAGCACTCACCGCTCGACATGGGGAGGCC  
ThrGlySerValIleHisIleProLeuArgGlnGlyThrHisAlaArgHisAlaGluAla  
TCCTTCCACCTTGATGCTTCCGCCGTGGCTGCCCTCAACGAGGCCGATGTTGGCTACAAAC  
SerPheHisLeuAspAlaSerAlaValAlaAlaLeuAsnGluAlaAspValGlyTyrAsn  
TGCAGTAGCAGCGGCCGCGCTGTTAACCGCCGCGCTAGGCCCTTCGGCTCTCGTC  
CysSerSerSerGlyGlyAlaValAlaAsnGlyAlaLeuGlyProPheGlyLeuLeuVal  
CTCGCCGCCGGTGACCGCCGTGGCGAGCAAACGGCGGTCTACTTCTACGTCGCTAGGGGC  
LeuAlaAlaGlyAspArgArgGlyGluGlnThrAlaValTyrPheTyrValSerArgGly  
CTTGACGGAGGCCTCCACACCAGCTTCTGCCAAGATGAGCTGAGATCGTCACGAGCCAAG  
LeuAspGlyGlyLeuHisThrSerPheCysGlnAspGluLeuArgSerSerArgAlaLys  
GATGTGACCAAGCGTGTCACTCCATCGCAGGGCTTCGACATGGGGCGGAGGACCAAG  
AspValThrLysArgValIleGlySerThrValProValLeuAspGlyGluAlaLeuSer  
ATGAGGGTGCTCGTGGATCACTCCATCGCAGGGCTTCGACATGGGGCGGAGGACCAAG  
MetArgValLeuValAspHisSerIleValGlnGlyPheAspMetGlyGlyArgThrThr  
ATGACCTCGCAGGTGTACCCGATGGAGTCGTATCAGGAGGCAAGAGTCTACTTGTCAAC  
MetThrSerArgValTyrProMetGluSerTyrGlnGluAlaArgValTyrLeuPheAsn  
AACGCCACCGTCCAGCGTACGGCGGAAAGGCTGTCGTGACCAAGATGGACTCGGA  
AsnAlaThrGlyAlaSerValThrAlaGluArgLeuValValHisGluMetAspSerAla  
CACAAACCAGCTCTCAATGAGGACGATGGCATGTATCTCATCAAGTTCTGAACTCTCGT  
HisAsnGlnLeuSerAsnGluAspAspGlyMetTyrLeuHisGlnValLeuGluSerArg  
CATTAATAAGCTACATTGGATCAAAGAAGATCACCAAGGAAAGGGCAATTCTACATAATT  
His  
CGAACATCTGCACAACCTCGCTGCAGCATGCATTGAAACATCTGTATTGGATCATC  
TTCTCATTTATGTCATACTATATTACTTTGTAAAAA  
|||||

FIG. 8 (CONTINUED)

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		86	115	125	132	157	164	220	229	280	290	343	353
H. v.	6sft	KFQIakNY.MsDfEGLMY..YIGMvHfMFTQYNP	MewGhAVS	..LsqGATVL	DfDfPMTAyy	eHBClDEFPVg	DwGK.FTASSTF						
V.r.	Inv	KFQPERNW.MfDfPcPMy..YKGMyHfPfQYNP	TvWGHAVS	..WtGqSATIL	DfDfPTTAwI	MfEcVdffPVS	DYGi.FTASkTF						
D.C.	Inv	KFQPNQNW.MfDfPcPlI..YKGWvHfLfyQYNP	TvWGHAVS	..WtGqSATIL	DfDfPTTAwI	MfEcVdryPVS	DYGi.YfASkTF						
L.e.	Inv	KFQPQNW.MfDfPcPlY..MKGWvHfLyQYNP	TvWGHAVS	..WtGqSATIL	DfDfPTTAwI	MfEcVdryPVS	DYGK.YfASkTF						
D.C.	cwInv	KFQPkgNW.iDfPcPMy..YKGvHfLfQYNP	TvWkAvS	..xSQGATL	aFfDfPTTAwI	MfEcPdffPVS	DYGn.FyASkTF						
A.s.	Inv	.....wPMy..YAGiYAssYQYNP	TvWGHAVS	..WtGqSATIL	qfRdPTtgwI	.....	.....						
E.c.	Inv	HLaPpaGW.MfDfPcLiY..FNGryBaFfQhP	MwGhAHS	..FSGQA..VD	hFRDPK...Y	MfEcPdffPrc..	DYGhDFyaQQsm						
S.m.	Scrib	HiePktG1.LmtpaqfSY..FNGkfNLFYQwP	kSwlHtes	..ySGSA..ye	hFRDPK...Y	MfEcPpalvEI..	DfGfEcNatQaf						
B.P.	LeLA	BySPeQW.MfDfPcLyy..FeGeYHfLyQhP	MwGhAVS	..PSGSAVWD	DfDfPKVIM	1fxcPdI.Friq	DYGsDfYAivsw						
B.s.	Sacc	BySPeQW.MfDfPcLyy..YAgeYHfLyQhP	MwGhAVS	..PSGSAVWD	DfDfPKVIM	vHfEcPdIPalP	DYGrDfTAavsw						
X.m.	Inv	HfTpshGw.MfDfPcLyyDakeedwLYQzNP	LwGhAVS	..PSGSAVWD	nPfDfPKVIM	QxRcpQlykVP	MfEcDfYA1Qcf						
S.c.	Inv1	HfTpshGw.MfDfPcLyyDakeekdLYQzNP	LwGhATS	..ySGSAvWD	qfRdPcvfW	QxRcpQlyeVP	DfGfDfYA1Qcf						
S.p.	Inv	HfTpckGw.MfDfPcLyyDfDktakJwLYQzNP	LwGhATS	..PSGSAvWD	qfRdPcvfW	QxRcpQlyeVP	DfGfDfYA1Qcf						
A.n.	Inv	Bw1ppnq.igDpcLhytDpsG1fHvgf1hdG	...ssAtt	avfDgS..VI..	afrDgS..VI..	tWagwRnfE	DwGfesXaaagk						
B.a.	SacB	glDwDswPLqpad.gtvvaerPg..YHvFaLAg	MFYqkvGd	qEWGcAtF..	tLpDfH..YV	k.rdaelANGA	DiymLGvS..n						
B.s.	SacB	glDwDswPLqnad.gtvvanPg..YHvFaLAg	MFYqkvGe	qEWGcAtF..	tLpDfH..YV	k.rtdeLNGA	DiymLGvS..n						
S.m.	SacB	drDwDswPvqPaktgevindPg..Yqlvvatmg	LLynkGd	qEWGcAtV..	amDfH..VI	mXnraBvNaA	rnvmlGvS..d						
Z.m.	LevU	...VNDewPLrdix..gqrvsFqG..WsvifAlva	yFyStGg	.EWGcCtIm..	dfDfPhV..FI	tpdgAcycaAA	pdGvYGfvSE..n						

I           II           III           IV           V

FIG. X12

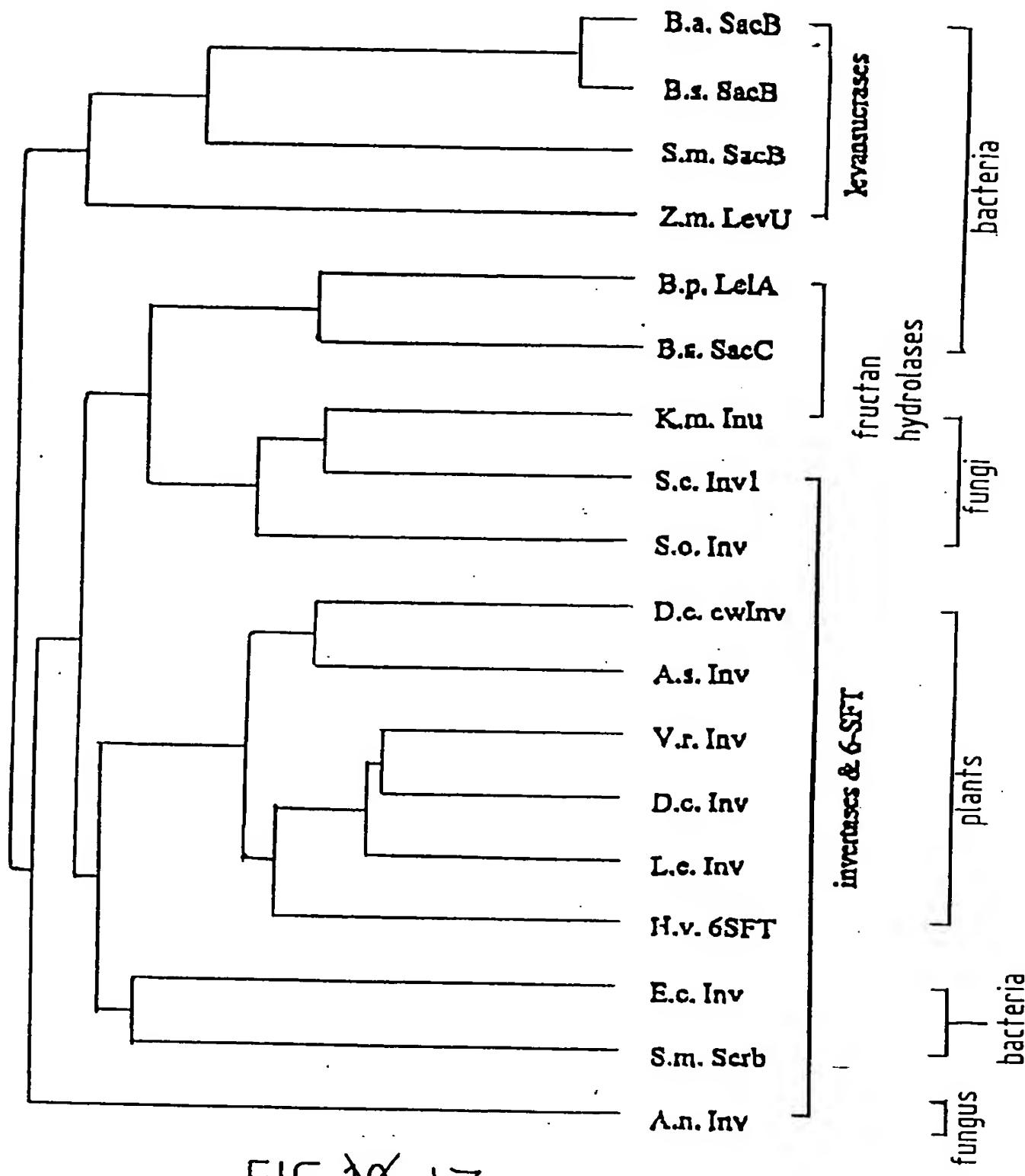
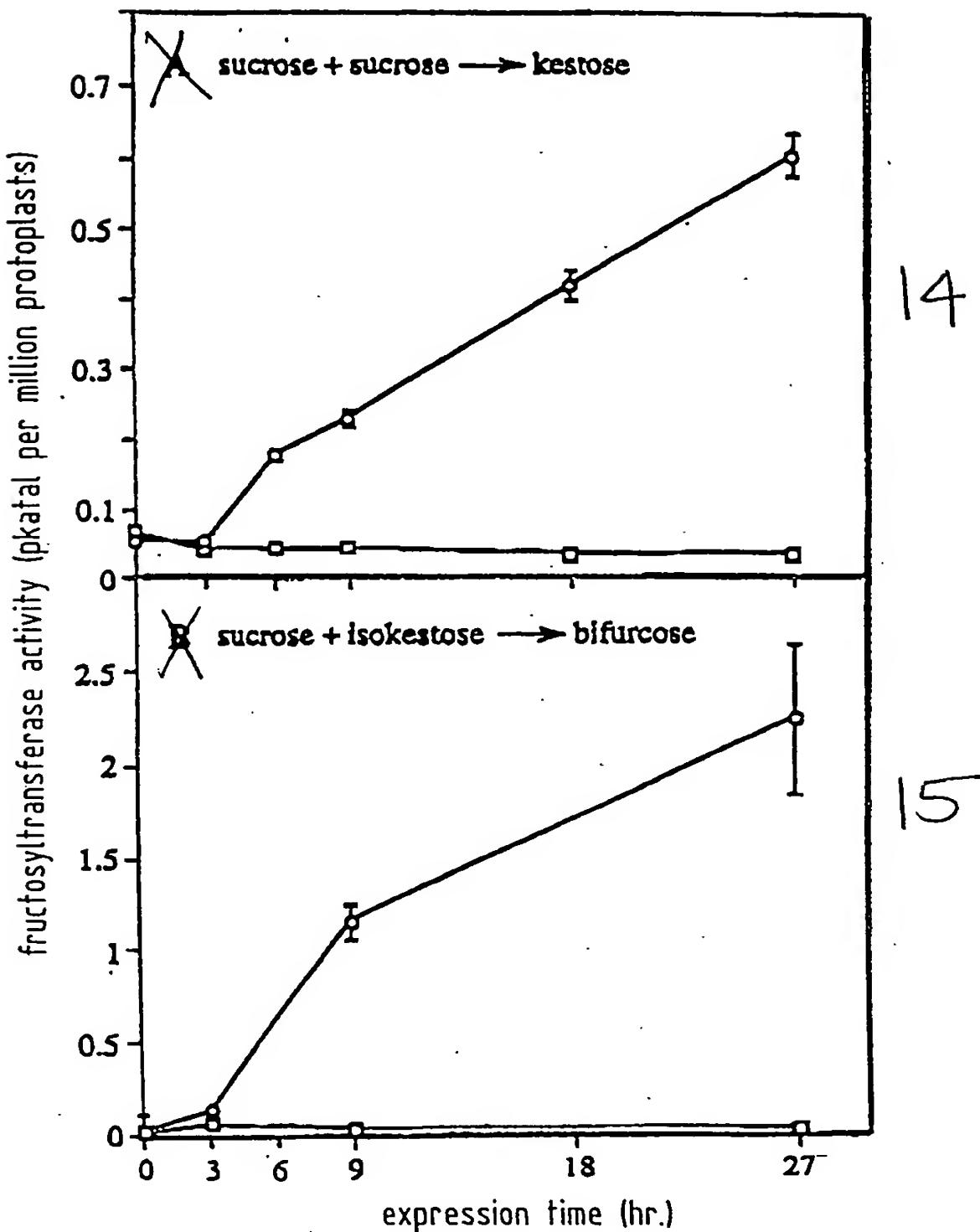


FIG. ~~10~~ 13



FIGS ~~X~~ 14 and 15

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## IEF (*Helianthus tuberosus* FFT)

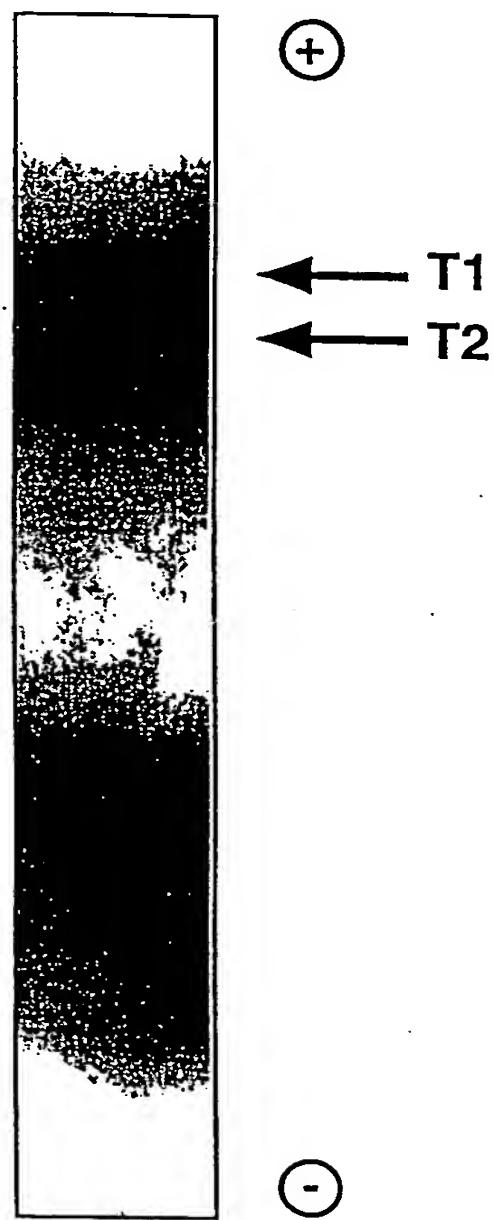
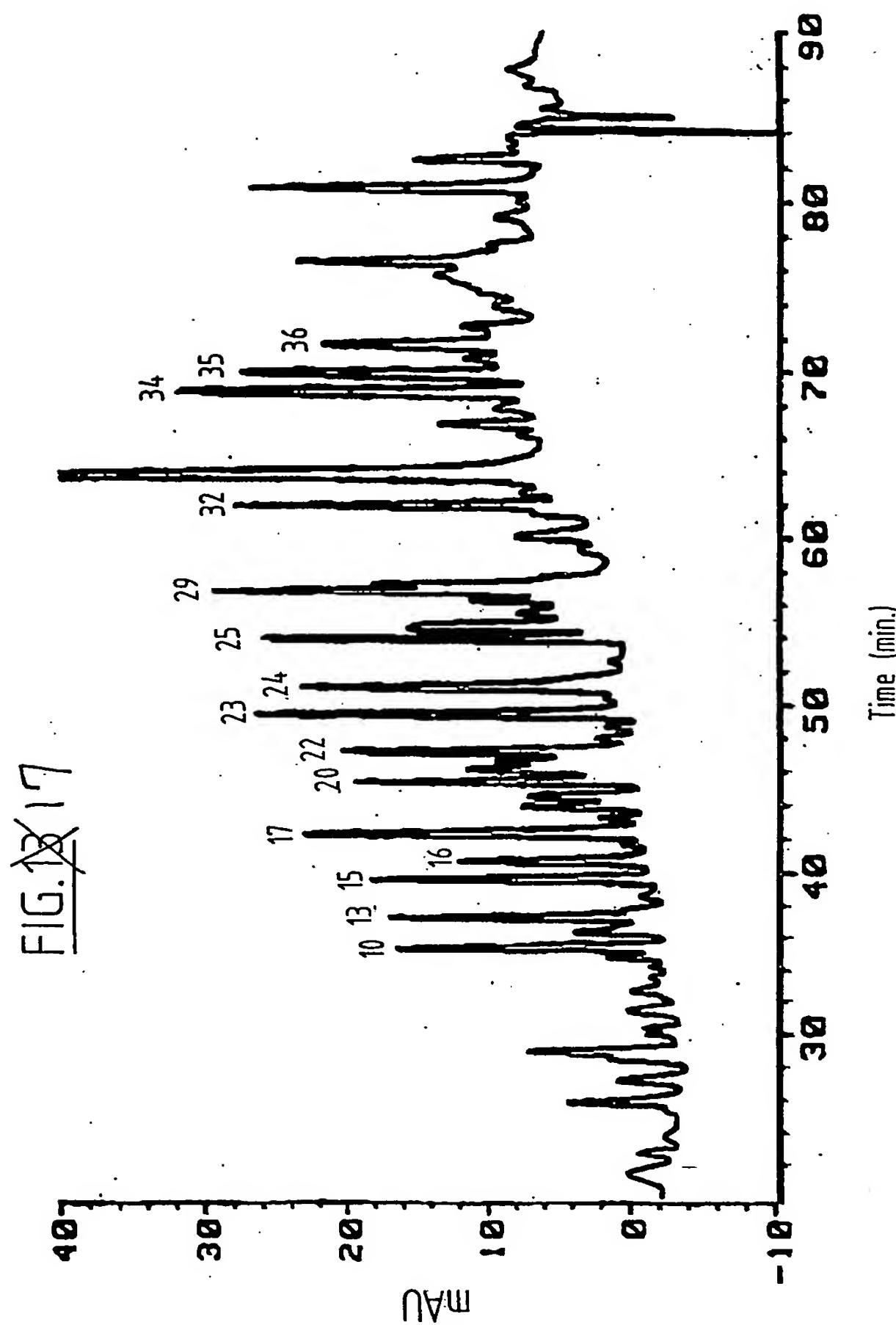


FIG. ~~12~~ 16



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